

# Model D4E

## Serial Digital to NTSC/PAL Encoder

*AJA VIDEO*

### Introduction

The D4E converts Component Serial Digital (SDI) to analog Composite or Y/C (S Video). The D4E is useful for monitoring, level/phase checking, check dubs, or desktop video applications. The D4E provides 2 Composite analog outputs or 1 Y/C output. The D4E automatically configures to 525 or 625 line component digital inputs and outputs NTSC (525 line input) or PAL (625 line input). The D4E encodes the full dynamic range of input component video - values below black and above white are not clipped. In the NTSC mode, the 7.5 IRE pedestal can be disabled by external dip switch selection.

### Specifications

Serial Input	SMPTE 259M 270mb, (SDI)
SDI Cable Equalization	300 meter 8281 typical
Frequency Response	+/- .25db to 5.5Mhz (Y) +/- .25db to 2.0Mhz (Chroma - S Video) +/- .25db to 1.3Mhz (Chroma - Composite) see Note 1
2T K factor	<1% (Y)
Diff. Gain	<1.5%
Diff. Phase	<1.5 degree
Y/C delay	10ns max
D/A Converters	10 bits
Signal Path	8 bits see Note 2
Delay (input to output)	1.5us
Output level adjustment	+/-20% (internal)
Output level matching	1.5% or 10mv (All outputs are separately buffered)
Power	5v DC regulated, 2 watts (AJA power supply model DWP)
Size	131 x 45 x 25 mm

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www.aja.com

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**Dip Switch Functions**

All dip switches are accessible through a cut-out in the bottom of the unit.

**SW 1 Y/C (Output selection)**

OFF: 2 composite outputs  
ON: Y/C (S Video) output

**SW 2 Blank**

NAR: Vertical (line numbers indicate where video starts)  
line 13, field 1; line 12, field 2 (525 line)  
line 10, field 1; line 322, field 2 (625 line)  
Horizontal (active video line duration's)  
ITU-R.470 (720 pixels PAL/NTSC)

WIDE: Vertical (line numbers indicate where video starts)  
line 20, field 1; line 20, field 2 (525 line)  
line 23, field 1; line 336, field 2 (625 line)  
Horizontal (active video line duration)  
ITU-R/SMPTE (710 pixels NTSC, 702 pixels PAL)

**SW 3 Pedestal** NOTE: No effect with 625 input

ON: 7.5 IRE pedestal for NTSC  
OFF: No pedestal

**SW 4 TEST**

ON: Output 75% Color Bars (requires valid SDI input)  
OFF: Normal operation

**Note 1** The D4E is programmed for a 1.3 MHz chroma bandwidth when in the composite video mode. This provides the best quality video when encoding component digital video. In certain situations with lower cost monitors, it may be desirable to reduce the composite chroma bandwidth to 650 KHz to reduce the effects of cross-color artifacts. This option is available from AJA Video as a special order.

**Note 2** The encoder / D to A chip used in the D4E has an 8 bit input for component digital video and 10 bit D to A converters for the analog outputs. This situation is often described as an 8 bit "signal path" and 10 bit "Quantization". Due to the internal processing of the encoder chip, it is advantageous to use 10 bit D to A converters at the output even though the input is 8 bits.

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